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ABSTRACT

Several core areas of urban educational distress are summarized in this paper. These form the basis for the development of the central theme which is concerned with defining society's failure to produce educated young adults and develop their cognitive learning potential. This failure is discussed in terms of a range of socioeconomic attributes. A model is presented by which students in social studies (current events) or economics classes can be made aware of the effect of the educational crisis upon them. The economics of public finance in urban educational centers is the vehicle chosen for this experiment. A feedback teaching technique is utilized as a tool for implementing the cognitive learning objective. Features of the technique are described and illustrated with respect to the public financing teaching model. It is the thesis of this paper that students can break out from the circular pattern of inadequate achievement through this self learning device. (Author/GC)

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THE USE OF URBAN ECONOMIC PROBLEMS AS A POSITIVE TOOL FOR LEARNING IMPROVEMENT

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Nearly five million children--ten percent of the public school population--attend schools in the classrooms of the big U. S. cities. . . Achievement levels are three, four, even five years below the averages of students nationwide. . . Truancy is epidemic, dropping out before the end of high school all too common. . . Costs are soaring, cities can't pay the bills. 1/

Educators, parents, youth--we are all too familiar with the failures of the urban school systems. We anguish that the cure for the disease which permeates our urban educational centers is still unknown; we seek to identify the more obvious distresses and to alleviate these symptoms. But the symptoms themselves are illusive and ever changing. Cause and effect relationships which we once recognized, now must be reevaluated in view of the demand for new human priorities and social relevance.

The purpose of this paper is to summarize several core areas of educational distress in our large urban centers and to condense

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1/ Newsweek, September 12, 1977, p. 62.

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these multifaceted problems into a central theme for purposes of developing an objective upon which to direct our analyses and our attempts for a solution. The central theme defining the society's failure to produce educated young adults is the systems inability to foster internalized cognitive learning potentials. The dimension of this failure is discussed in terms of a broad range of socioeconomic attributes.

A second purpose of the paper, correlated with the first, is to present a model with which students in either social studies current events or economics classes can be made aware of the educational crises in which they themselves exist. By learning to identify and analyze basic aspects of the problem, the students themselves can begin to develop and integrate techniques for problem solving. The economics of public finance in urban educational centers is the vehicle chosen for this experiment.

Thirdly, a feedback teaching technique originally developed by Allen C. Kelly at Duke University is utilized as a tool for implementing the cognitive learning objective. Its features are described and illustrated with respect to the public financing teaching model.

It is proposed, and this paper examines the methodology and concepts necessary, to implement a self-learning device grounded in the very economic problems facing the typical urban school system. It is our thesis that this subject matter and this technique is useful and productive in achieving a breakout from

the circular pattern of the inability to relate and inadequate achievement. The process described is unique: it deals and presents to the students the economic interactions which stifle the learning environment. We propose that students be exposed to the factors that limit their achievements.

The Educational Environment

The Coleman Report, "Equality of Educational Opportunities," described the unequal achievements of 600,000 black and white students in every grade level.² Only a part of the difference between black and white students could be traced to the poorer socioeconomic backgrounds faced by black students. Moreover, the achievement gap widened at higher educational levels.

This finding was at odds with our notion that the initial handicap of youngsters starting from a home environment which was illequipped to provide a framework or an incentive structure for educational advancement could be offset by educational processes during the formal schooling period. Educators were then left with the conclusion that unless significant inroads could be achieved in the development of preschool children, such children would fall farther and farther behind as they progressed through the educational system. Programs such as Operation Headstart were directed to provide an early learning environment in

^{2/} James E. Coleman et al, "Equality of Educational Opportunity," (Washington, D.C.: U.S. Government Printing Office, 1966).

which socioeconomic disadvantaged children could be retooled before the beginning of the formal educational process.

However, our experience in this latter endeavor has been largely negative. The large urban schools, ghetto or otherwise, have exceptionally high truancy rates; the drop out ratios likewise suggest that not only the quality but the quantity of education received by students in many large urban centers is inadequate.³

Certain assumptions have been postulated regarding the role of education in society. Principally, educational achievement was assumed to be highly correlated with economic productivity.⁴ Various studies have indicated the theoretical and quantitative relationships existing between years of education and income.⁵ The unemployment rate for individuals receiving high school diplomas from urban

3/ For example, in Richmond, Virginia metropolitan area there were 118,711 students enrolled during 1975-1976. Richmond's drop rate of 8 percent was exceeded only by Norfolk--another large urban area in Virginia. Only 59.2 percent of Richmond's 1972 ninth grade class graduated in 1976. Average daily attendance in Richmond is 90 percent of average daily membership. Appendices to the Report of the Richmond Resources Committee of the Central Richmond Association, August 1, 1977, p. 48.

4/ Gary Becker, Human Capital, National Bureau of Economic Research, New York 1964.

5/ See, Samuel Bowles, "Toward an Educational Production Function," Hansen, W. L. editor, Education, Income and Human Capital, (New York: National Bureau of Economic Research, 1970) also H. J. Battle and I. M. Moszer. "Determinants of the Southern Rural Wage Rate," paper presented to the Western Regional Science Association Meetings, February 27, 1972, and H. J. Battle and I. M. Moszer, Profile of the Marginal Skilled Worker, Monographs, Vol. 1, No. 1, Bureau of Economic Research and Development, Virginia State College, 1971.

schools is likely to be higher than students graduating from suburban or rural area schools.⁶ Positive and statistically significant correlations exist when income is regressed against years of formal education.

Furthermore, assumptions regarding the accuracy of achievement tests as an indicator of education induced productivity have been postulated. Reading and reasoning ability developed through the educational process increase with the length of the period of schooling. Standardized achievement test scores are frequently utilized as a valid indicator of educational output.

Society has assumed that education has been the primary vehicle for achieving social and economic equality. The rise of the middle class has been linked to the presence of public education. In fact, democracy itself has been seen to depend on an educational system under which economic opportunity is guaranteed. A subset of these latter assumptions is that income distributions which become increasingly unequal are inconsistent with democratic principles and educational efforts.

Thus, objectives of education consistent with the foregoing assumptions have striven (1) to improve productivity of the low income sectors of society, by attempting to equalize educational,

6/ Among Richmond, Virginia area high school graduates, 6.6 per cent were unemployed in 1976, one of the highest unemployment rates among high school graduates in the State of Virginia. Appendices to the Report of the Richmond Resources Committee of the Central Richmond Association, August 1, 1977, p. 48.

and hence, economic opportunities, (2) to increase the cognitive achievement so that educational programs can be internalized, and (3) to improve the socioeconomic potential of all students since democratic philosophies require equal access to the "yellow brick road."

The Results of Urban Ghetto Education

In 1976, cases of aggravated assaults in U.S. schools exceeded 150,000. Vandalism cost school districts an estimated \$600 million. In 1977, threats of a teachers' strike in Boston would close the educational process to some 70,000 students. School districts in Philadelphia, Detroit and Toledo had deficits totaling hundreds of millions of dollars. Closing schools because of a lack of funds have become an ever present probability and in some cases already a reality. Tax payers in many districts are becoming increasingly reluctant to assume a greater share in the financing of their debt ridden schools. The tax base is eroded further by the continued migration of residential and business property holders out of the inner city areas to suburban locations.

Although the absolute level of educational attainment has increased considerably in the last eighty years, this has not been correlated with a more equal distribution of schooling by socioeconomic class.⁷

7/ David M. Gordon, "Class, Race and Education," in Problems in Political Economy: An Urban Perspective, (Lexington, Mass: D.C. Heath & Co., 1970), pp. 178-180.

David Gordon reports on data collected in 1960; they show that the proportion of high school seniors going to college varied directly with the socioeconomic status of parents.⁸

The quantity of education received by black and white males, however, is becoming more equal. In 1960, only 33 per cent of non-white males between the ages of 25-29 had completed four years of high school; sixty-three per cent of whites in the same age group had finished high school. These percentages by 1969 had increased to 60 per cent and 78 per cent for the two groups, respectively.⁹

Estimates of the present value of a lifetime return resulting from a completion of high school education were found to be three times as great for whites as nonwhites.¹⁰ Likewise, the risks of unemployment for whites is substantially less than for black counterparts with the same levels of education.

Perhaps one of the strongest and most distressing statements in recent years regarding the economic mobility of nonwhites, once they have completed their urban ghetto educations, is that of Bennett Harrison. As a result of his research in the area of economic mobility, he states:

In no part of the American city does the labor market "work" adequately for non-whites. In particular, there is no evidence to support the assumption that non-white

8/ Gordon, op. cit., p. 179.

9/ U. S. Bureau of the Census, "The Social and Economic Status of Negroes in the United States, 1969," Current Population Reports, Series p-23, No. 29, p. 51.

10/ Bennett Harrison, Education and Underemployment in the Urban Ghetto," in Problems in Political Economy: An Urban Perspective, (Lexington, Mass.: D.C. Heath & Co., 1971), pp. 184-185.

economic opportunity in the suburbs is greater than in the ghetto. Taken together with the increasing resistance of middle-class white Americans to all forms of social protest and particularly to integration--a resistance which implies that the social costs of enforced integration would be extremely high--one cannot react to these materials with anything other than the deepest pessimism about the potential effectiveness of policies for 'suburbanizing' non-whites who presently live in the urban ghetto.¹¹

Hence, comparing the results with our underlying assumptions regarding the effects of educational processes on income, productivity and social mobility suggest that either we develop new assumptions or we develop new tools for effectuating educational outcomes. No where is this more necessary than for urban ghetto students. If we take the assumptions as normative statements--what should be--and develop positive tools--alternatives upon which the normative statements can be implemented, we might begin again to produce desired educational results.

Cognitive Reasoning Ability

Social psychologists and educators, among other, have coined the term "cognitive reasoning ability." Loosely defined the term pertains to one's ability to integrate, to analyze and to draw conclusions about one set of relationships from an understanding of some other set of relationships. The process is not entirely innate. Reasoning skills can be developed to a large extent by exposure to the reasoning process.

¹¹/ Harrison, op cit. p. 189.

Among all the alternative approaches to facilitating a greater return to education, the development of the cognitive reasoning ability seems the least costly and the most expansive. It is not a question of black versus white or urban versus neighborhood education. However, the problems arising from the urban ghetto educational processes translate into a deficiency in the student's ability to recognize and then control his or her own environment. James Coleman argues:

It should be recognized, of course, that the goal described here--of equality of educational opportunity through the schools--is far more ambitious than has ever been posed in our society before. . . . Those blacks who gave responses indicating a sense of control of their own fate achieved higher results on the tests than those whites who gave the opposite response. This attitude was more highly related to achievement than any other factor in the student's background or school.¹²

Changes, then, in one's conception of oneself in relation to one's environment may have a greater effect on achievement than any other single factor.

The Economics-Social Studies Curriculum

If students in social studies classes in our large urban schools were exposed to the economic relationship influencing the financing of their own schools, if they could develop both an understanding and analysis of the special problems causing, and resulting from,

^{12/} James S. Coleman, "Equal Schools or Equal Students?" The Public Interest, No. 4 National Affairs Inc. 1966.

urban-ghetto educational environment, they might then learn a little about subject matter (in this case economics) and a lot about themselves in relation to that environment. It is suggested that improvement in the socioeconomic outputs of educational processes must begin with an increase in cognitive reasoning skills. The use of urban economics problems in classroom instruction provides a positive tool for learning and reasoning improvement.

Models involving the public financing of school expenditures provide a special insight for social studies, current events and/or economics student. The current and the long range implications of economic conditions present in large urban educational centers can be analyzed. With an understanding of how and why one's own economic environment affects educational potential, students may develop the reasoning ability to alter the otherwise pessimistic economic results of that environment. It is this premise which defines the focus of this paper.

The Economics of Public Goods - Most goods in our society are private goods. This means that their use can be restricted to and by the owners. Public goods, however, are available to all once they have been produced. Items such as national defense, police and fire protection, lighthouses, parks and education are examples of public goods. They share two

features. First, these goods must be put to the use and the benefit of the entire society. Providing a public good to one person necessarily makes that service available to all. It is impractical to protect only one house in a street when all are on fire. This means that public goods are consumed jointly by the entire community and leads to the the second quality: it is impossible to restrict the use of public goods only to those paying for the services.

These characteristics lead to the "free rider" problem. Everyone has an incentive to avoid paying. The service will be provided and the benefits enjoyed even though no contribution has been made. This is a logical procedure as each family unit attempts to maximize its material well-being. Pollution of the environment--burning leaves or leaving trash in parks--is an example of this process. Any one individual's action will have only a--negligible impact. However, when all follow the same behavior, the system breaks down.

The public goods aspects of education have two immediate consequences. First, vandalism is costless to the perpetrator. Even if aware of the additional funds needed to repair the damage, the tax increase prorated to just one, individual taxpayer is inconsequential. Yet the total cost to the community is large. In fact the out of pocket cost is only a portion of the total cost. The disruption of the entire

educational process is not costless. The second factor is that all taxpayers individually will tend to opt for lower tax burdens which translate into lower levels of educational services. This is rational since the benefits of greater educational services and their consequent attainments will rarely be felt by the taxpayer directly. Moreover, with the availability of nearby school districts, there is the opportunity of migrating to a neighborhood providing better and more services at a lower per pupil cost.

The Economics of Public Finance. The economics of the urban suburban school quality and financing dilemma is illustrative of a complex system where causation is not one way but rather subject to feedbacks. It is the hypothesis of this paper that it is the ability to recognize a simultaneous interacting system which is most crucial to the development of cognitive ability. Moreover, the frustration resulting from never succeeding in adjusting to these unknown and unforeseen feedbacks is a strong negative enforcer and a leading cause of student alienation.

It is almost impossible to portray in words the functioning of a system in which every part is related to every other in such a way that each has a causal influence on the others. Even if one is only trying to explain a gasoline engine it is hard to know where to begin, because the person to whom one seeks to explain it can only understand the nature of the crankshaft if he has first grasped

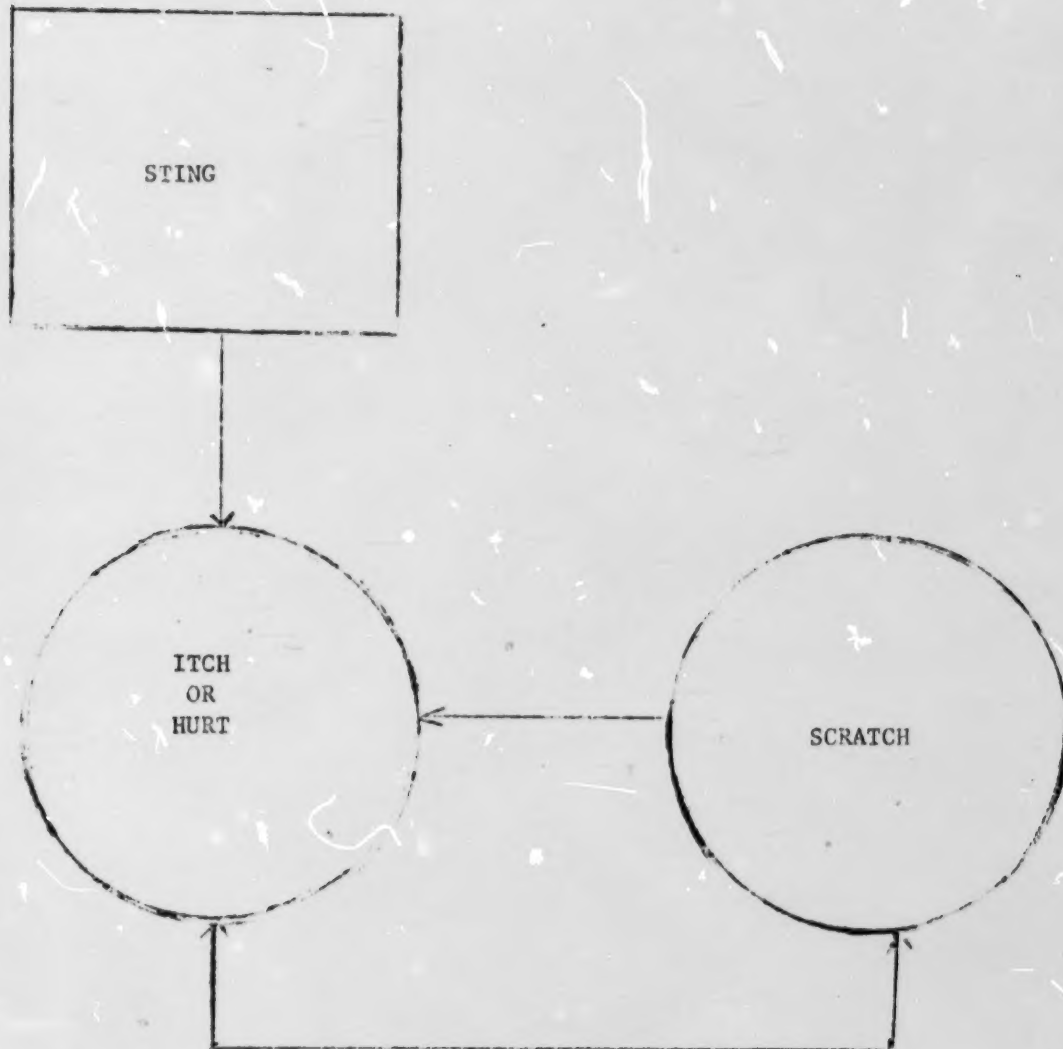
that of the connecting rods, the pistons, the valves, the camshaft, and so on. (emphasis added)¹³

The simple sting, itch/hurt, scratch model is so commonplace as to be overlooked as a powerful example of the typical socioeconomic feedback system. The flow chart of this model is pictured in Figure 1. The sting is the external stimulus event which causes a chain reaction within the system. However, it is exogenous to the model; there is no feedback from the system to the cause. The other two variables are endogenous. They cause, effect and reinforce each other. Thus the itch causes the scratch which in turn causes further itch or hurt which requires more scratching... The solution of this system requires recognition that the scratch aggravates the itch/hurt and that the most efficient cure for the sting is an appropriate medical antidote.

The public finance school nexus is a similar model of feedbacks; however because of the far larger number of variables and the effects of time, it is more complex. This means that the apparent causes and solutions are masked to a larger extent. Unfortunately, unlike the sting model, where the next occurrence may be resolved more efficiently, the school model is neither reversible nor replicable for the individual subjects. Therefore knowledge of its construction and interrelationships

^{13/} Konrad Lorenz, *On Aggression*, (New York, Hartcourt, Brace and World, Inc., 1966), p. xi.

Figure 1: Flow Diagram of the Intra Causal System

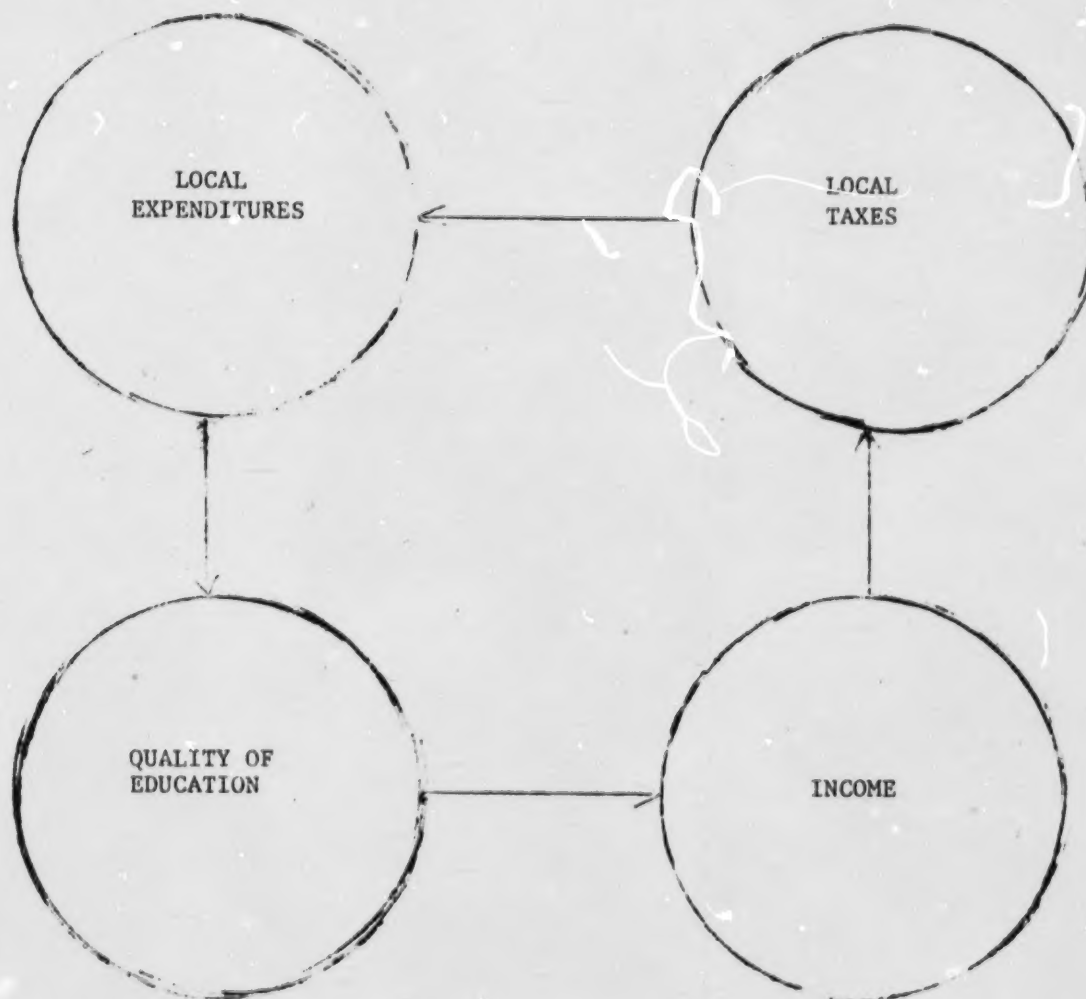


-  - Outside events - no feedback from system
-  - Events acting upon, and acted on by, the system

are essential to the social and economic achievements plans of students.

A simple first approach to the school-achievement-financing model is illustrated in Figure 2. Its basic assumptions are that the quality of education depends on, and is strongly related to, total spending on schools. Also that more years of education cause higher incomes. In addition, given the constraints of public finance, the level of spending is limited to tax receipts. In turn, these revenues depend on the tax base, or income of the community, and the tax rate, or the burden the community imposes on itself. The flow diagram aids in the tracing of the causes and the effects of the system. Low income means low tax receipts and thus expenditures. This yields a low quality level of education. These causes in turn, lead to continuing and sustaining the low income and educational levels. On the other hand, high incomes lead to greater tax collections, better quality of education and result in increased income levels. It is apparent that a low income community must tax itself at a rate higher than its high income counterpart to provide the same quality of service. The model, even in its simplicity, yields many useful insights into the configuration of education, its financing and income achievement. It is possible to make the system more realistic by adding blocks of variables and expanding the explanation of each such sector. For example, contributions to education are made by states to their local

Figure 2: Flow Diagram of the School-Achievement-Financing Model



jurisdictions. One of the bases of this distribution is the daily attendance of each school district. If truancy is related inversely to quality of education and to income, and there is good cause to conclude that such is the case, then this means of aiding local schools results in low income communities receiving less support than the higher income communities. (This may occur, and probably does, despite the fact that the lower income groups tend to exhibit a higher tax effort, where effort is measured by the tax rate.) Truancy, of course, also enters the system in making the average per pupil cost higher but at the same time reducing the income effectiveness per year of education.

Another pertinent aspect of this situation is the ability to leave the system. This is an obvious response, and a serious one for the low income school districts, in the current world. In reality, the system is not closed. Thus, in terms of Figure 2, another set of loops must be constructed which are alike but yet cause interactions between each other. These are between adjacent school districts in the same metropolitan area. The possibility exists that some families can and will leave the particular system and migrate to a nearby community. Since mobility tends to be easier for the higher income group, the chances are that those who have profited most from a specific system is dynamic, once a time dimension is added, it is seen that the problem of low income, low quality and low achievement

becomes localized. The system splits into two. It generates a pathological decline for the low income part and an exponential growth path for the more fortunate, upper income, more achieving group.

This kind of situation has been explored by Charles Tribout.¹⁴ An economist, Tribout conceived a theoretical model of the public finances of localities--cities, towns and counties. The essence of the model is mobility of the family in an environment of many adjoining communities wherein each local government provides a largely different menu of the level of services. Since economists assume that individuals attempt to gain the utmost satisfaction by maximizing benefits and minimizing costs, this selfish behavior leads to migration. This theory postulates that families choose their home sites according to their preferences for public services and incomes. But communities offering higher levels of services also impose and collect higher taxes. Thus the satisfaction seeking family will move. The movement of the families will continue until each family lives in a community in which the cost of services is just equal to the benefits it desires.

There is a feedback aspect in this relationship. As families express a greater demand for quality education, they will attempt to migrate to communities which provide these services. This will tend to bid up the price of properties as people compete to live

^{14/} Charles Tribout, "A Pure Theory of Local Expenditures," Journal of Political Economy, 64, (October 1956), pp. 416-424.

in those communities affording the desired level of education. However, the higher taxes needed to finance the greater educational services hold down these real estate prices. (The total monthly home payment is not only principal and interest but also insurance and local taxes. Since the purchase decision is made with respect to the total monthly payment rather than the purchase price directly, a tax dollar is equivalent to an increase in housing costs and in home prices. At 9%, a thirty year mortgage costs about \$8 per month per \$1000 of borrowed principle; therefore, an increase in taxes of \$96 per year is equal, in impact on monthly payments, to an increase of \$1000 in the price of the house.) The opposite effect holds in communities offering lower levels of services.

In a test of this Tiebout Hypothesis, Wallace Oates¹⁵ used a sample of many small New Jersey communities all within the greater New York metropolitan area. Using data for 1960, he found that the median value of homes in a community was negatively related to local effective tax rates but positively related to per pupil expenditures and to income.¹⁶ This demonstrates the feedback between fiscal burdens, incomes and educational expenses. In this environment it is seen that differences in desired levels of services and the taxes

^{15/} Wallace E. Oates, "The Effects of Property Taxes and Local Public Spending on Property Values: An Empirical Study of Tax Capitalization and the Tiebout Hypothesis," Journal of Political Economy, 77 (November-December 1969), pp. 957-971.

^{16/} These effects are net of the allowed for changes in distance from the center of New York, median size of homes, and the age of housing stock.

associated with their provisions are reflected in the price or value of houses.¹⁷

The foregoing provides an analytical model for discussion of fiscal relationships affecting school programs for the social studies, current events or economics class. Two concepts might be presented initially.

First, the analytical framework for discussion may be described from the viewpoint of student educational programs. Students might be asked to envision what they would propose for the school curriculum and why. Other support function then may be listed such as utilities, instructional supplies, bus operations, data processing, building repairs, library equipment repairs and capital expenditures. Once students have assessed a comprehensive list of the kinds of items going into the typical school budget, the sources of financing then may be identified and analyzed. The concepts of general and special fund appropriations may be discussed and the particulars regarding taxation and state revenue sources identified. An evaluation of the distinctions involved in taxation by personal income, community sales receipts, and

^{17/} This is not inconsistent with the description above of the flight of families to communities in an attempt to avoid higher taxes for the support of public education. The parents who want and can afford better educational opportunities move to the communities offering these services. They are willing to pay a higher price --taxes-- to enjoy the higher quality of education when they move. Education in town A is not a public good to a resident of town B. Once the move has occurred, education is a public good to the new resident. Thus the incentive will be renewed to hold down the taxes in the second town.

property values lend themselves to this topic. Problems of the inner city tax base and corollary fiscal responsibilities in such communities are also appropriate subjects for review.

Second, the concept of an economic model can be introduced. Such a concept provides the methodology of integrating the various parameters of the system. It provides also the coefficients or the relative weights of system components. As a learning tool, the concept of an economic model provides the student with a means of conceptualizing (1) a system of interacting parts, (2) a time frame in which leading and lagging indicators will affect outcomes--exogeneous variables and (3) a method of projecting future events given present considerations of the system.

Clearly, these concepts will have a greater or lesser degree of application considering the nature of the particular curriculum in which they are developed. The focus of the assignment is to present a method of assessing relationships in light of what is known--the cost benefit nature of public education--and in terms of a logical tool for drawing conclusions about future relationships--the forecasting model. Students who are assisted in developing these analytical techniques will have made progress in the area of cognitive learning ability.

Teacher Information Processing System (TIPS)

A recent teaching innovation developed at Duke University by Allen C. Kelley makes use of computer assisted lecture techniques for large section classes.¹⁸ The technique is referred to as "Teacher Information Processing System (TIPS)." It is useful not only to aid the teacher in processing student information, but more importantly as a tool for individualizing student instruction.

Principally, the objective of the TIPS technique is to enable teachers to determine learning goals and to test for individual student progress in mastering the goals. It provides a feedback approach whereby students are assigned remedial or expansive tasks consistent with their individual performance. The TIPS approach could be useful in implementing the cognitive learning goals outlined in this paper.

^{18/} Allen C. Kelley. "An Experiment with TIPS: A Computer Aided Instructional System for Undergraduate Education." American Economic Review 58 (May 1968): 446-57,

Allen C. Kelley. "The Economics of Teaching: The Role of TIPS." In Recent Research in Economic Education, edited by K. G. Lumsden. Englewood Cliffs: Prentice Hall, 1970,

Allen C. Kelley. "TIPS and Technical Change in Classroom Instruction." American Economic Review 62 (May 1972): 422-28, and

Allen C. Kelley. "Individualizing Instruction Through the Use of Technology in Higher Education." Journal of Economic Education 4 (Spring 1973): 77-89.

Essentially, the teacher first identifies various specific learning objectives and specifies in what form he will measure completed learning tasks. See Table 1 for a sample "Description of Learning Objectives." For example, the objective may be the identification of variables affecting the school budget. Learning completion may include listing or recognition of specific variables. Another learning objective may be analysis of relevant concepts. This could be "tested" by specifying various conditions under which proposed expenditures could and could not be matched by projected tax resources. A third learning objective might be problem resolution--that is to specify solutions or conclusions. This objective may be examined by proposing appropriate and inappropriate conclusions to problem sets and having students "fill in" missing or critical components.

The TIPS technique involves (1) subject objective determinations, (2) testing and (3) a feedback system for re-learning or broadening subject goals. The third technique is described as "Decision rules and Prescriptions." For example, a student having tested, say, 80 per cent correct would be referred to several additional projects aimed at developing further understanding and analysis. A student testing between 50 and 79 per cent correct would be referred to additional exercises in the same topic area as the one tested. A student who was unable to identify or analyze correctly more than 50 per cent of the predetermined learning objectives would be referred to remedial

Table 1

Description of Learning Objectives

- | | |
|---------------|---|
| Objective I | To identify 8 variables affecting school expenditure programs. |
| | The student should be able to list at least 8 major components making up a typical school expense account, current and capital. |
| Objective II | The student should be able to distinguish between the 3 sources of tax revenues: Personal income, sales taxes and property taxes, and to identify factors affecting the property tax rate and base. |
| Objective III | The student should be able to analyze how changes in the tax base will affect expenditure programs. Analyses will include model building to determine cause and effect relationships. |
| Objective IV | The student should be able to draw conclusions regarding probable socioeconomic consequences of various public financing alternatives. |

tasks consistent with fundamental concepts of the course.

Each week a short non-graded survey is administered to the class in addition to the regular examinations. The purpose of the weekly survey is to provide for a continuing procedure for student self-evaluation of individual progress. It is also a means of early identification of areas of course context difficulty.

Ideally these surveys can be corrected by computer assisted techniques--techniques which expand greatly the effectiveness and scope of the TIPS approach. The computer can be programmed to print individual "Decision and Prescription Rules" consistent with each student's survey performance. A sample survey in the area of public finance of school budgets is illustrated in Table 2 and the corresponding "Prescription" illustrated in Table 3.

These techniques enable the teacher to deal with each student as an individual by prescribing a course of study based on that student's performance rather than appealing to one segment of class interests. The probable result of the total class approach method of instruction is the failure to recognize and to deal with individual interests and problems. Furthermore, a given student may be weak in one area but do well in another area of the course material. This technique provides a means of advising a review of only those portions of the materials with which a student has difficulty; it also en-

TABLE 2

A Sample Survey for Diagnostic testing

1. Not counting teaching salaries, identify from this list that item contributing the most of the cost of running your school.
 - A. Maintenance and Repair
 - B. Library Books
 - C. Text Books
 - D. Bus Operation

2. Identify the most important source of local government taxes (which are for funding schools).
 - A. Sales Taxes, since people can shop in the suburbs as well as downtown,
 - B. Income Taxes, since people can live in the suburbs, but usually work in town,
 - C. Property Taxes, since houses cannot be moved, but have to stay where they have been built,
 - D. Commuter Taxes, since people work in a business, but the business firm can move out of the city.

3. Cities with many low income families have low tax collections because
 - A. Low income families can afford only inexpensive homes,
 - B. Owners of inexpensive homes otherwise would have to pay tax rates much greater than in high income communities,
 - C. Families leave the city for the suburbs as family income rises,
 - D. All of the above reasons.

4. If middle income families could be persuaded to move back into the city then the quality of education might improve because
 - A. People would be closer to their work,
 - B. The city would build more schools,
 - C. Property values would rise and more money would become available for more educational programs,
 - D. Middle income families are smarter.
5. State governments send money to local school districts to aid them in providing education. Since the state funds received by a city depend on the number of pupils attending school,
 - A. Students can help to get more money for their education by encouraging others to cut back on truancy and dropouts,
 - B. The law should be changed,
 - C. Fewer students should be promoted each year,
 - D. Students can not help in getting more money for the system and have to do the best they can with what they have.
6. In the case of public goods, individuals have an incentive to
 - A. Use more than they need and pay less than they can,
 - B. Use less than they need so that they will be charged less,
 - C. Use just as much as they need so that taxes will be less,
 - D. Use just as much as they would if they had to pay for it in a store.

TABLE 3

Sample Decision Rules and Prescriptions

Student Progress Report
Economic Aspects of Urban Education
Name of Teacher:

Survey #1
Taxes and the Schools

You answered--out of 6 questions correctly. The Table below tabulates your answers and the ones thought to be most appropriate by those who have studied this problem. Please use the assignment typed at the bottom to increase your understanding of the subject matter.

Table of Responses

Question Number	Answers	
	Yours	Best
1	-	A
2	-	C
3	-	D
4	-	C
5	-	A
6	-	A

Assignments

Your responses to Questions 1 and 3 indicate that your understanding could be improved by doing the following tasks.

Refer to the city's school budget for 1978 and calculate the proportion of expenditures allocated to the eight largest catagories.

Check the newspaper file in the library and summarize a recent article dealing with school funding and tax proposals.

courages further development in those areas in which the student has excelled.

Where school programs do not lend themselves to the availability of computer assisted teaching facilities, the "Decision Rules and Prescriptions" can be xeroxed and handed back to students along with their corrected surveys.

Adaptations, in terms of programmed learning techniques, also can be incorporated. Students who do not meet preselected learning objectives do not progress further until these learning goals are established. The programmed learning text may be developed by the teacher for use in her specific course. However, the initial investment in such labor intensive methods can be significant. The TIPS approach, on the other hand, permits the class to progress at a uniform speed with individual students spending more or less time on certain aspects of the course as it is presented to the entire class.

Conclusion:

This paper has presented the methods and procedures of using the typical disadvantages and handicaps of urban public education as the subject matter of classroom instruction. The explanation of the interrelated socioeconomic system, the feedbacks between educational quality, achievement and income and migration is used as a method to improve and accelerate the cognitive learning process. This technique, it is claimed, will not alienate student

but rather permit positive identification with the instructional process. Furthermore, the involvement of the student is encouraged not only through the subject matter discussed but also with the computer and/or television technique of individualized attention to each student's answers and participation. This procedure and methodology should aid in permitting the participating students to gain their goals not only by improving cognitive skills but by identifying with the educational process. Informing them of the truths may yet set them free.